This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-32 (canceled)

Claim 33 (currently amended): A synthetic antigen presenting matrix for activating $CD4^+$ T cells comprising:

a) a support;

b) an extracellular portion of a recombinant MHC class II heterodimer operably linked to the support and capable of loading a selected peptide; and

c) an extracellular portion of at least one recombinant accessory molecule operably linked to the support such that the extracellular portions of the MHC class II heterodimer and accessory molecule are present on the matrix in sufficient numbers for activating $CD4^+$ T cells when a peptide is loaded onto the extracellular portion of the heterodimer.

Claim 34 (original): The matrix of claim 33 wherein the support is a cell fragment.

Claim 35 (original): The matrix of claim 33 wherein the support is a cell.

Claim 36 (original): The matrix of claim 35 wherein the extracellular portion of the MHC molecule is linked to the cell by a transmembrane domain of the MHC class II heterodimer.

Claim 37 (original): The matrix of claim 33 wherein the support is a liposome.

Claim 38 (original): The matrix of claim 33 wherein the support is a solid surface.

Claim 39 (original): The matrix of claim 33 wherein the extracellular portion of the MHC class II heterodimer is linked to an epitope which reacts with an antibody to link the portion to the support.

Claim 40 (original): The matrix of claim 33 wherein the extracellular portion of the Class II MHC heterodimer is linked to $(His)_6$ which reacts with nickel to link the portion to the support.

Claim 41 (original): The matrix of claim 33 wherein the support is a porous material.

Claim 42 (original): The matrix of claim 33 wherein the peptide is loaded onto the extracellular portion of the MHC class II heterodimer.

Claim 43 (original): The matrix of claim 33 wherein the extracellular portion of the MHC class II heterodimer is empty.

Claim 44 (original): The matrix of claim 33 wherein the accessory molecule is a costimulatory molecule.

Claim 45 (original): The matrix of claim 44 wherein the costimulatory molecule is B7.1 or B7.2.

Claim 46 (original): The matrix of claim 33 wherein the accessory molecule is an adhesion molecule.

Claim 47 (original): The matrix of claim 46 wherein the adhesion molecule is ICAM-1, ICAM-2, ICAM-3 or LFA-3.

Claim 48 (original): The matrix of claim 33 wherein the accessory molecule is a survival molecule.

Claim 49 (original): The matrix of claim 48 wherein the survival molecule is Fas ligand or CD70.

Claim 50 (original): The matrix of claim 33 having a first accessory molecule and a second accessory molecule.

Claim 51 (original): The matrix of claim 50 wherein the first accessory molecule is a costimulatory molecule and the second accessory molecule is an adhesion molecule.

Claim 52 (original): The matrix of claim 51 wherein the costimulatory molecule is B7.1 or B7.2 and the adhesion molecule is ICAM-1.

Claim 53 (original): The matrix of claim 50 wherein the first accessory molecule is a costimulatory molecule and the second accessory molecule is a survival molecule.

Claim 54 (original): The matrix of claim 50 wherein the first accessory molecule is a survival molecule and the second accessory molecule is an adhesion molecule.

Claim 55 (original): The matrix of claim 54 wherein the survival molecule is CD70 and the adhesion molecule is ICAM-1.

Claim 56 (original): The matrix of claim 50 wherein the first and second accessory molecules are costimulatory molecules.

Claim 57 (original): The matrix of claim 56 wherein the costimulatory molecules are B7.1 and B7.2.

Claim 58 (original): The matrix of claim 50 further comprising a third accessory molecule.

Claim 59 (original): The matrix of claim 58 wherein the first accessory molecule is a costimulatory molecule, the second accessory molecule is an adhesion molecule, and the third accessory molecule is a survival molecule.

Claim 60 (original): The matrix of claim 59 wherein the costimulatory molecule is B7.2, the adhesion molecule is ICAM-1 and the survival molecule is CD70.

Claims 61-84 (canceled)

Claim 85 (original): A method of producing a synthetic antigen matrix comprising:

a) providing an extracellular portion of a recombinant MHC class II heterodimer;

b) providing an extracellular portion of at least one recombinant accessory molecule; and

c) linking the MHC class II heterodimer and accessory molecule to a support in sufficient numbers for activating $CD4^+$ T cells when a peptide is loaded onto the MHC class II heterodimer.

Claim 86 (original): The method of claim 85 wherein the accessory molecule is a costimulatory molecule.

Claim 87 (original): The method of claim 86 wherein the costimulatory molecule is B7.1 or B7.2.

Claim 88 (original): The method of claim 86 wherein the accessory molecule is an adhesion molecule.

Claim 89 (original): The method of claim 88 wherein the adhesion molecule is ICAM-1, ICAM-2, ICAM-3 or LFA-3.

Claim 90 (original): The method of claim 85 wherein the accessory molecule is a survival molecule.

Claim 91 (original): The method of claim 90 wherein the survival molecule is Fas ligand or CD70.

Claims 92-99 (canceled)

Claim 100 (original): A method for activating $CD4^+$ T cells <u>in vitro</u>, the method comprising:

a) providing the matrix of claim 33;

b) loading the MHC class II heterodimer with a peptide; and

c) contacting the peptide-loaded cell matrix with the $CD4^+$ T cells, thereby inducing the contacted $CD4^+$ T cells to proliferate and differentiate into activated $CD4^+$ T cells.

Claim 101 (original): The method of claim 100 further comprising the step of separating the activated $CD4^+$ T cells from the matrix.

Claim 102 (original): The method of claim 101 further comprising the step of adding the activated $CD4^+$ T cells to an acceptable carrier or excipient to form a suspension.

Claim 103 (original): The method of claim 102 further comprising the step of administering the suspension to a patient.

Claims 104-113 (canceled)

Claim 114 (new): The method of claim 85 wherein the support is a cell fragment.

Claim 115 (new): The method of claim 85 wherein the support is a cell.

Claim 116 (new): The method of claim 115 wherein the cell is an insect cell.

Claim 117 (new): The method of claim 116 wherein the insect cell is selected from the group consisting of Spodoptera and Drosophila.

Claim 118 (new): The method of claim 115 wherein the extracellular portion of the MHC molecule is linked to the cell by a transmembrane domain of the MHC class II heterodimer.

Claim 119 (new): The method of claim 85 wherein the support is a liposome.

Claim 120 (new): The method of claim 85 wherein the support is a solid surface.

Claim 121 (new): The method of claim 85 wherein the extracellular portion of the MHC class II heterodimer is linked to an epitope which reacts with an antibody to link the portion to the support.

Claim 122 (new): The method of claim 85 wherein the extracellular portion of the Class II MHC heterodimer is linked to $(His)_6$ which reacts with nickel to link the portion to the support.

Claim 123 (new): The method of claim 85 wherein the support is a porous material.

Claim 124 (new): The method of claim 85 wherein the peptide is loaded onto the extracellular portion of the MHC class II heterodimer.

Claim 125 (new): The method of claim 85 wherein the extracellular portion of the MHC class II heterodimer is empty.

Claim 126 (new): The method of claim 85 wherein the matrix further comprises a first accessory molecule and a second accessory molecule.

Claim 127 (new): The method of claim 126 wherein the first accessory molecule is a costimulatory molecule and the second accessory molecule is an adhesion molecule.

Claim 128 (new): The method of claim 127 wherein the costimulatory molecule is B7.1 or B7.2 and the adhesion molecule is ICAM-1.

Claim 129 (new): The method of claim 126 wherein the first accessory molecule is a costimulatory molecule and the second accessory molecule is a survival molecule.

Claim 130 (new): The method of claim 126 wherein the first accessory molecule is a survival molecule and the second accessory molecule is an adhesion molecule.

Claim 131 (new): The method of claim 130 wherein the survival molecule is CD70 and the adhesion molecule is ICAM-1.

Claim 132 (new): The method of claim 126 wherein the first and second accessory molecules are costimulatory molecules.

Claim 133 (new): The method of claim 132 wherein the first and second costimulatory molecules are B7.1 and B7.2.

Claim 134 (new): The method of claim 126 further comprising a third accessory molecule.

Claim 135 (new): The method of claim 134 wherein the first accessory molecule is a costimulatory molecule, the second accessory molecule is an adhesion molecule, and the third accessory molecule is a survival molecule.

claim 136 (new): The method of claim 135 wherein the costimulatory molecule is B7.2, the adhesion molecule is ICAM-1 and the survival molecule is CD70.

Claim 137 (new): A method for activating $CD4^+$ T cells <u>in vitro</u>, the method comprising:

a) contacting a synthetic antigen presenting matrix according to claim 33 with a peptide library <u>in vitro</u> for a sufficient time to generate a peptide-loaded MHC class II heterodimer for activating $CD4^+$ T cells; and

b) contacting the peptide-loaded MHC class II heterodimer of step a) with $CD4^+$ T cells, thereby inducing the contacted $CD4^+$ T cells to proliferate and differentiate into activated $CD4^+$ T cells.

Claim 138 (new): The method of claim 137 further comprising:

c) separating the activated $CD4^+$ T cells from the APC.

Claim 139 (new): The method of claim 138 further comprising the step of adding the activated $CD4^+$ T cells to an acceptable carrier or excipient to form a suspension.

Claim 140 (new): The method of claim 139 further comprising the step of administering the suspension to a patient.

Claim 141 (new): The matrix of claim 33, wherein the at least one accessory molecule is selected from the group consisting of a costimulatory molecule which is B7.1 or B7.2; an adhesion molecule which is ICAM-1, ICAM-2, ICAM-3, LFA-1, or LFA-3; and a survival molecule which is Fas ligand, TNF-receptor, or CD70.

Claim 142 (new): The matrix of claim 141, wherein the at least one accessory molecule is the costimulatory molecule selected from the group consisting of B7.1 and B7.2.

Claim 143 (new): The matrix of claim 141, wherein the at least one accessory molecule is the adhesion molecule selected from the group consisting of ICAM-1, ICAM-2, ICAM-3, LFA-1, and LFA-3.

Claim 144 (new): The matrix of claim 141, wherein the at least one accessory molecule is the survival molecule selected from the group consisting of Fas ligand, TNF-receptor, and CD70.

Claim 145 (new): The matrix of claim 141, wherein the at least one accessory molecule is the costimulatory molecule and the adhesion molecule.

Claim 146 (new): The matrix of claim 145, wherein the costimulatory molecule is B7.1 or B7.2 and the adhesion molecule is ICAM-1.

Claim 147 (new): The matrix of claim 141, wherein the at least one accessory molecule is the costimulatory molecule and the survival molecule.

Claim 148 (new): The matrix of claim 141, wherein the at least one accessory molecule is the adhesion molecule and the survival molecule.

Claim 149 (new): The matrix of claim 141, wherein the at least one accessory molecule is B7.1 and B7.2.

Claim 150 (new): The matrix of claim 141, wherein the at least one accessory molecule is the costimulatory molecule B7.2, the adhesion molecule ICAM-1, and the survival molecule CD70.

Claim 151 (new): The method of claim 85, wherein the at least one recombinant accessory molecule is selected from the group consisting of a costimulatory molecule which is B7.1 or B7.2; an adhesion molecule which is ICAM-1, ICAM-2, ICAM-3, LFA-1, or LFA-3; and a survival molecule which is Fas ligand, TNF-receptor, or CD70.

Claim 152 (new): The method of claim 100, wherein the at least one accessory molecule of claim 33 is selected from the group consisting of a costimulatory molecule which is B7.1 or B7.2; an adhesion molecule which is ICAM-1, ICAM-2, ICAM-3, LFA-1, or LFA-3; and a survival molecule which is Fas ligand, TNF-receptor, or CD70.

Claim 153 (new): The method of claim 137, wherein the at least one accessory molecule of claim 33 is selected from the group consisting of a costimulatory molecule which is B7.1 or B7.2; an adhesion molecule which is ICAM-1, ICAM-2, ICAM-3, LFA-1, or LFA-3; and a survival molecule which is Fas ligand, TNF-receptor, or CD70.